SYSTEMS DESIGN

SYSTEMS DESIGN

MASTER | WORK-FRIENDLY

STUDY & WORK

Location: Campus Villach
Europastraße 4, 9524 Villach

Duration: 4 semesters

Schedule:
Tue, Thu and Sat all day (occasional)
(classroom teaching with online parts)

Academic Degree:
Master of Science in Engineering (MSc)

ECTS Credits: 120

Language: English

Study places per year: 20

The complexity of technical systems is continually increasing, and our society relies on an ever-growing number of electronic devices to enhance everyday life. At the same time, numerous industries are exploring new ways to optimize their processes through digitalization. In this rapidly evolving landscape, engineers are faced with demanding and interconnected systems, requiring expertise beyond dealing with individual components. That's why we offer two demanding specializations for you to choose from, each with its particular content and characteristics: Electronic Systems and Robotic Systems.

COURSE INFORMATION

The first part of the study program focuses on general knowledge needed to design systems. The remaining is dedicated to the specialisations offered:

Electronic Systems
Our graduates apply their skills to the analysis of electronic circuits, using the principles of both analogue and digital electronics. Furthermore, they use knowledge of components, signal processing and feedback systems to create functional and efficient electronic systems.

Robotic Systems
Our graduate students use their skills to integrate new technologies, such as artificial intelligence, smart sensors and additive manufacturing to provide customised solutions for robot-based workplaces including principles of human-robot interaction.

JOBS AND CAREER

Graduates will be equipped to demonstrate an advanced understanding of computer science, dynamical systems, automation and control, mathematics, modeling and simulation, and sensors and actuators. They will be able to use artificial intelligence methods to solve complex engineering problems, adopt a system-oriented thought process and apply system-oriented methodologies. In the Systems Design master's program, future engineers undergo comprehensive training to tackle the technological and methodological challenges inherent in the realm of cutting-edge electronic systems. This preparation extends to their adept application in industrial settings, particularly in the realm of robotic systems.

NEW
Research Internship included

CURRICULUM

SYSTEMS DESIGN

ELECTRONIC SYSTEMS

1st Semester		
Systems Design Essentials 5 ECTS	Advanced Engineering Mathematics 5 ECTS	Dynamical Systems 5 ECTS
Signal and Data Analysis 5 ECTS	Software Development for Embedded Systems 5 ECTS	Introduction to Machine Learning 5 ECTS

2nd Semester		
Peripheral Devices and Sensors 5 ECTS	Advanced Control Systems 5 ECTS	Industrial Automation Systems 5 ECTS
Signal and Data Processing 5 ECTS	Advanced Electronic Systems 5 ECTS	Electro-dynamics 5 ECTS

3rd Semester		
High Speed Systems Design 5 ECTS	FPGA Systems Prototyping 5 ECTS	Power Electronics 5 ECTS
Electronics Special Topics 5 ECTS	Elective Module 1* 5 ECTS	Elective Module 2* 5 ECTS

4th Semester
Master Thesis 25 ECTS
Master Thesis Seminar Master Exam 5 ECTS

ROBOTIC SYSTEMS

1st Semester		
Systems Design Essentials 5 ECTS	Advanced Engineering Mathematics 5 ECTS	Dynamical Systems 5 ECTS
Signal and Data Analysis 5 ECTS	Software Development for Embedded Systems 5 ECTS	Introduction to Machine Learning 5 ECTS

2nd Semester		
Peripheral Devices and Sensors 5 ECTS	Advanced Control Systems 5 ECTS	Industrial Automation Systems 5 ECTS
Modelling and Simulation 5 ECTS	Advanced Robotic Systems 5 ECTS	Computer Vision 5 ECTS

3rd Semester		
Robot-based Production Systems 5 ECTS	Industrial Control 5 ECTS	Robot Dynam ics and Control 5 ECTS
Robotics Special Topics 5 ECTS	Elective Module 1* 5 ECTS	Elective Module 2* 5 ECTS

4th Semester
Master Thesis 25 ECTS
Master Thesis Seminar Master Exam 5 ECTS

*** Elective Module 1 and 2: Research project or two of the Modules 1 – 5**

Research project = Collaboration in one of the Research groups of Carinthia University of Applied Sciences

Module 1: Sustainable Systems Engineering
Module 2: Sustainable Systems Design
Module 3: Integrated Sensors
Module 4: Radio-Frequency Circuits and Systems
Module 5: Electromagnetic interference in power electronics (EIPE)

ECTS = European Credit Transfer System

DATES

Start: 1 October 2024

Study guidance:
info@fh-kaernten.at | +43 5 90500 7700

FH Days and information events:
all dates at www.fh-kaernten.at/study-guidance

€ COSTS

Tuition fee: € 363.36 per semester

Student Union Fee: around € 22, annual adjustment

CONTACT

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